

Application No. 10/695,408
Amendment with RCE
Reply to Office Action of January 17, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A storage processing device for use in a switched fabric, the switched fabric including at least one switch and the storage processing device, with the storage processing device coupled to the at least one switch, with first and second storage units connected to and coupled through the switched fabric and coupled to the at least one switch and the storage processing device, where the first and second storage units may be directly connected to the storage processing device or may be coupled through the at least one switch, the storage processing device to migrate data from the first storage unit to the second storage unit whether the first and second storage units are directly connected to the storage processing device or are coupled through the at least one switch, the storage processing device comprising:

an input/output module for coupling to the first and second storage units including: port processors to receive, operate on and transmit network traffic; and a switch coupling said port processors; and

a control module coupled to said input/output module, said input/output module and said control module being configured to interactively perform support data migration from the first storage unit to the second storage unit.

2. (Currently Amended) The storage processing device of claim 1, wherein said port processors include table information related to data migration and wherein said control module is coupled to said table information to maintain said table information for data migration.

3. (Currently Amended) The storage processing device of claim 2, wherein said table information includes a barrier entry and said port processors delay data write operations if said barrier entry relates to said data write operation.

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4. (Previously Presented) The storage processing device of claim 2, wherein said table information includes an entry related to the extents in the data migration, said entry defining an extent operation type.

5. (Previously Presented) The storage processing device of claim 4, wherein said table information further includes a legend entry for each extent operation type defining migration operations for the extent.

6. (Original) The storage processing device of claim 5, wherein said table information further includes entries referenced by said legend entry defining physical extent location.

7. (Original) The storage processing device of claim 6, wherein legend entries include entries indicating data not migrated, data migrated and a barrier entry for data being migrated.

8. (Currently Amended) The storage processing device of claim 7, wherein said port-processors delay data write operations if said barrier entry relates to said data write operation.

9. (Original) The storage processing device of claim 8, wherein said control module provides commands to copy data and places said barrier entry for said data being copied.

10. (Currently Amended) A switched fabric for connection to and coupling of at least one host and at least two storage unitsdevices, the fabric comprising:
at least one switch for coupling to the at least one host and the at least two storage unitsdevices; and

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a storage processing device coupled to the at least one switch and for coupling to the at least one host and first and second storage units of the at least two storage units, devices where the first and second storage units may be directly connected to the storage processing device or may be coupled through the at least one switch, the storage processing device to migrate data between first and second storage units of the at least two storage units whether the first and second storage units are directly connected to the storage processing device or are coupled through the at least one switch, the storage processing device including:

an input/output module including: port processors to receive, operate on and transmit network traffic; and

a switch coupling said port processors; and

a control module coupled to said input/output module, said input/output module and said control module being configured to interactively perform support data migration between the first and second storage units.

11. (Currently Amended) The fabric of claim 10, wherein said port processors include table information related to data migration and wherein said control module is coupled to said table information to maintain said table information for data migration.

12. (Currently Amended) The fabric of claim 11, wherein said table information includes a barrier entry and said port-processors delay data write operations if said barrier entry relates to said data write operation.

13. (Previously Presented) The fabric of claim 11, wherein said table information includes an entry related to the extents in the data migration, said entry defining an extent operation type.

14. (Previously Presented) The fabric of claim 13, wherein said table information further includes a legend entry for each extent operation type defining migration operations for the extent.

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15. (Original) The fabric of claim 14, wherein said table information further includes entries referenced by said legend entry defining physical extent location.

16. (Original) The fabric of claim 15, wherein legend entries include entries indicating data not migrated, data migrated and a barrier entry for data being migrated.

17. (Currently Amended) The fabric of claim 16, wherein said ~~post~~-processors delay data write operations if said barrier entry relates to said data write operation.

18. (Original) The fabric of claim 17, wherein said control module provides commands to copy data and places said barrier entry for said data being copied.

19. (Currently Amended) A network comprising:
at least one host adapted to be connected to a switched fabric;
at least two storage units/devices, each adapted to be connected to a switched fabric; and
a switched fabric connected to and coupling the at least one host and the at least two storage units/devices, the switched fabric comprising:
at least one switch for coupling to the at least one host and the at least two storage units/devices; and
a storage processing device coupled to the at least one switch and for coupling to the at least one host and first and second storage units of the at least two storage units/devices, where the first and second storage units may be directly connected to the storage processing device or may be coupled through the at least one switch, the storage processing device to migrate data between the first and second storage units whether the first and second storage units are directly connected to the storage processing device or are coupled through the at least one switch, the storage processing device including:

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an input/output module including ~~port~~ processors to receive,
operate on and transmit network traffic; and

~~a switch coupling said port processors; and~~

a control module coupled to said input/output module, said
input/output module and said control module being configured to interactively
perform support data migration between the first and second storage units.

20. (Currently Amended) The network of claim 19, wherein said ~~port~~
processors include table information related to data migration and wherein said control
module is coupled to said table information to maintain said table information for data
migration.

21. (Currently Amended) The network of claim 20, wherein said table
information includes a barrier entry and said ~~port~~-processors delay data write operations
if said barrier entry relates to said data write operation.

22. (Previously Presented) The network of claim 20, wherein said table
information includes an entry related to the extents in the data migration, said entry
defining an extent operation type.

23. (Previously Presented) The network of claim 22, wherein said table
information further includes a legend entry for each extent operation type defining
migration operations for the extent.

24. (Original) The network of claim 23, wherein said table information further
includes entries referenced by said legend entry defining physical extent location.

25. (Original) The network of claim 24, wherein legend entries include entries
indicating data not migrated, data migrated and a barrier entry for data being migrated.

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26. (Currently Amended) The network of claim 25, wherein said port processors delay data write operations if said barrier entry relates to said data write operation.

27. (Original) The network of claim 26, wherein said control module provides commands to copy data and places said barrier entry for said data being copied.

28. (Currently Amended) A method for supporting in-data migration between first and second storage units connected to and coupled through a switched fabric, the switched fabric including at least one switch and a storage processing device, the storage processing device coupled to the at least one switch, where the first and second storage units may be directly connected to the storage processing device or may be coupled through the at least one switch, the method comprising in the storage processing device:
providing an input/output module including: port-processors receiving, operating on and transmitting network traffic; and
a switch coupling said port-processors; and

providing a control module coupled to said input/output module, said input/output module and said control module being configured to interactively perform support data migration between the first and second storage units whether the first and second storage units are directly connected to the storage processing device or are coupled through the at least one switch.

29. (Currently Amended) The method of claim 28, wherein said port processors include table information related to data migration and wherein said control module is coupled to said table information to maintain said table information for data migration.

30. (Currently Amended) The method of claim 29, wherein said table information includes a barrier entry and said port-processors delay data write operations if said barrier entry relates to said data write operation.

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31. (Previously Presented) The method of claim 29, wherein said table information includes an entry related to the extents in the data migration, said entry defining an extent operation type.

32. (Previously Presented) The method of claim 31, wherein said table information further includes a legend entry for each extent operation type defining migration operations for the extent.

33. (Original) The method of claim 32, wherein said table information further includes entries referenced by said legend entry defining physical extent location.

34. (Original) The method of claim 33, wherein legend entries include entries indicating data not migrated, data migrated and a barrier entry for data being migrated.

35. (Currently Amended) The method of claim 34, wherein said processors delay data write operations if said barrier entry relates to said data write operation.

36. (Original) The method of claim 35, wherein said control module provides commands to copy data and places said barrier entry for said data being copied.